

ABSTRACT OF THE DISCLOSURE

The present invention provides a WDM transmission
5 system that can multiplex/demultiplex and transmit
wavelength division multiplexing signals, where signal
lights have a different signal bandwidth, in a status
without much deterioration of transmission quality. For the
WDM signals P0, 10 Gbit/s signals with a 25 GHz bandwidth
10 are arrayed in odd channels on a grid with a 50 GHz interval,
and 40 Gbit/s signals with a 75 GHz bandwidth are arrayed in
even channels. The WDM signals P0 are demultiplexed by the
interleaver 1, then are demultiplexed by the interleavers 2
and 3. The central frequency of the transmission bands of
15 the ports A1 and B1 are shifted from the central frequency
of the 10 Gbit/s signals so that the overlapping portion of
the transmission band of the ports A1 and B1 substantially
match the signal band of the channel $ch [4i - 2]$ (i is an
integer of 1 or higher). By this, only 40 Gbit/s signals in
20 the channel $ch [4i - 2]$ are output from the port B1. The
overlapping portion of the transmission band of the other
port is also set so as to match with the signal band of the
signal to be output in the same way.